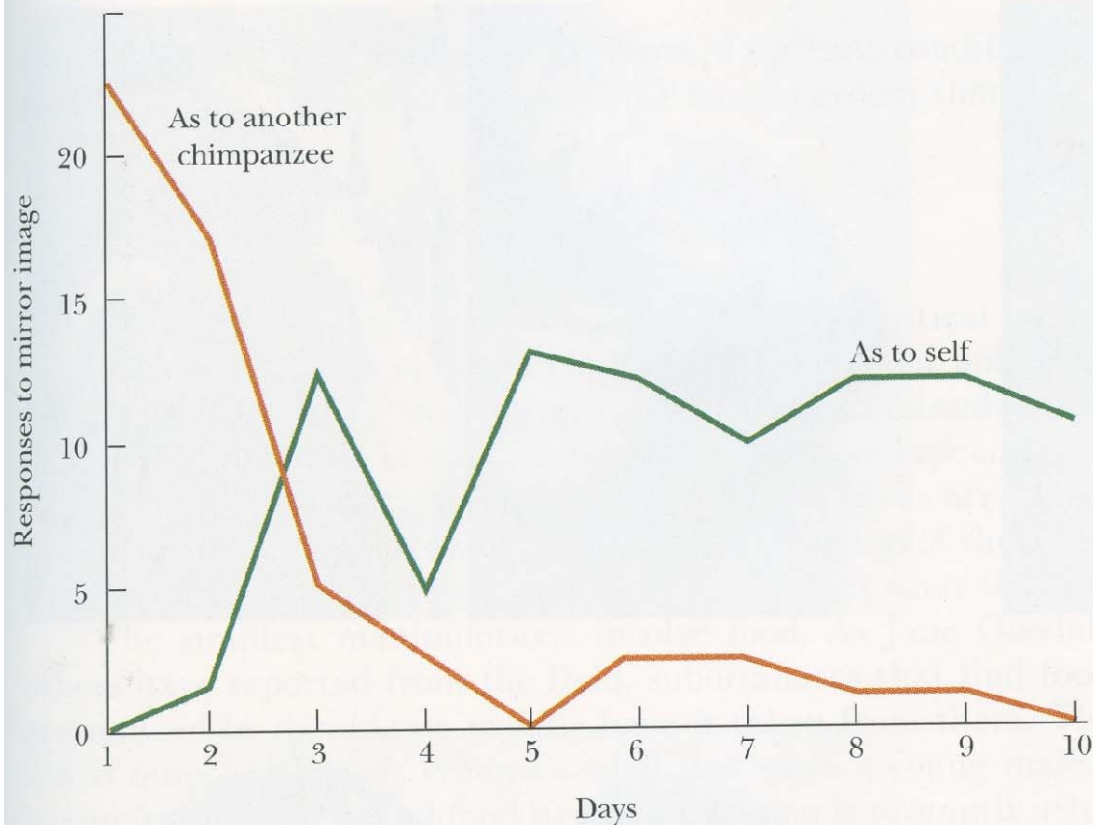


Self-Image (self-awareness)

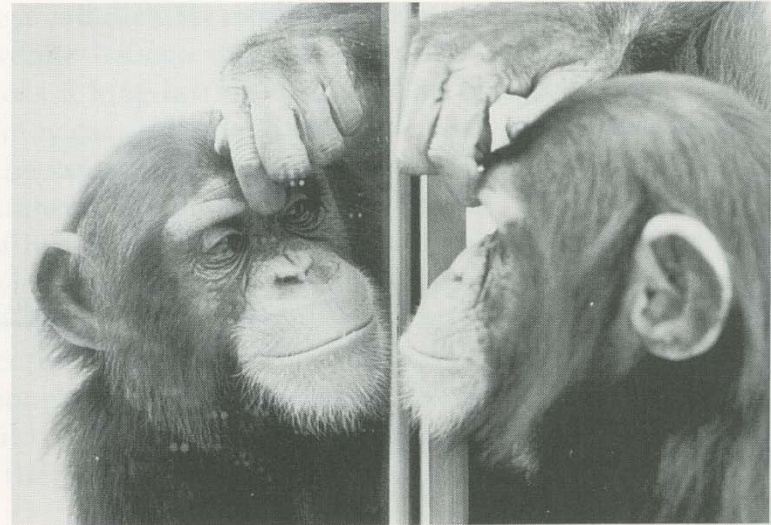


Self-Image (self-awareness)

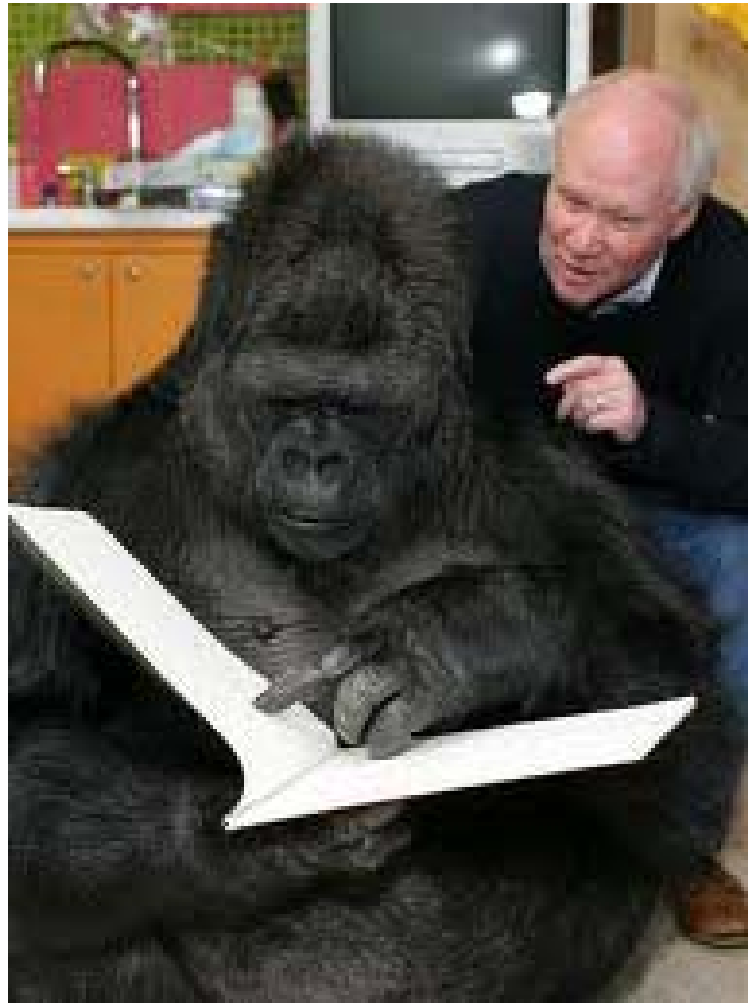


Chimpanzees respond initially to a mirror image as though it were another chimp, reacting with social gestures. Within a very few days, however, the chimp figures out what is going on and begins using the mirror for self-grooming.

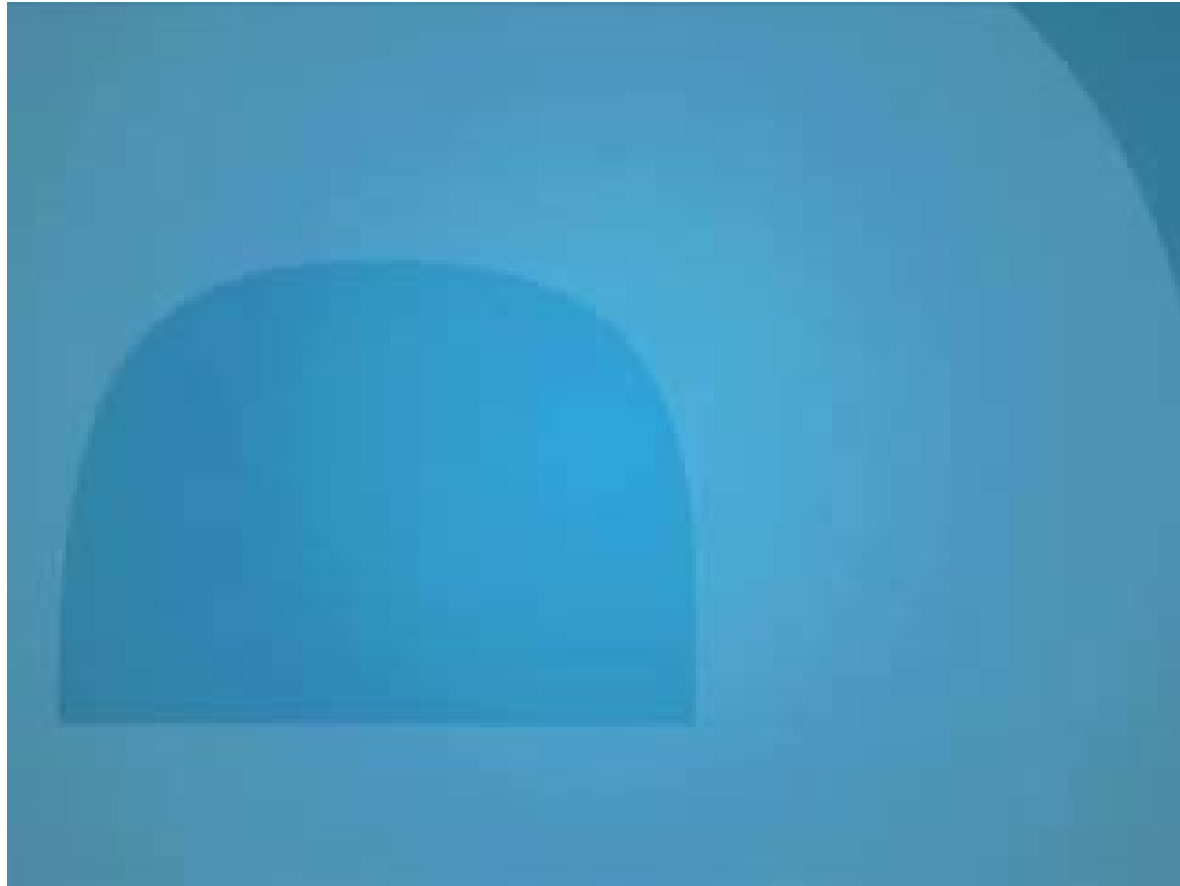
Self image– Self awareness?



Koko the gorilla used a mirror to apply makeup



Even some birds can do it too...



Magpie (crow family)

If an animal can recognize itself and others
can recognize the social status
can understand what signals mean

Then the animal might know how to
manipulate others...

1. Food manipulation in Chimpanzees

1. Gave a young male some bananas, he uttered loud food barks; then attracted older dominant males....
2. The next day gave the same young male bananas, he made “faint” choking sounds

Pioneered study by Jane Goodall

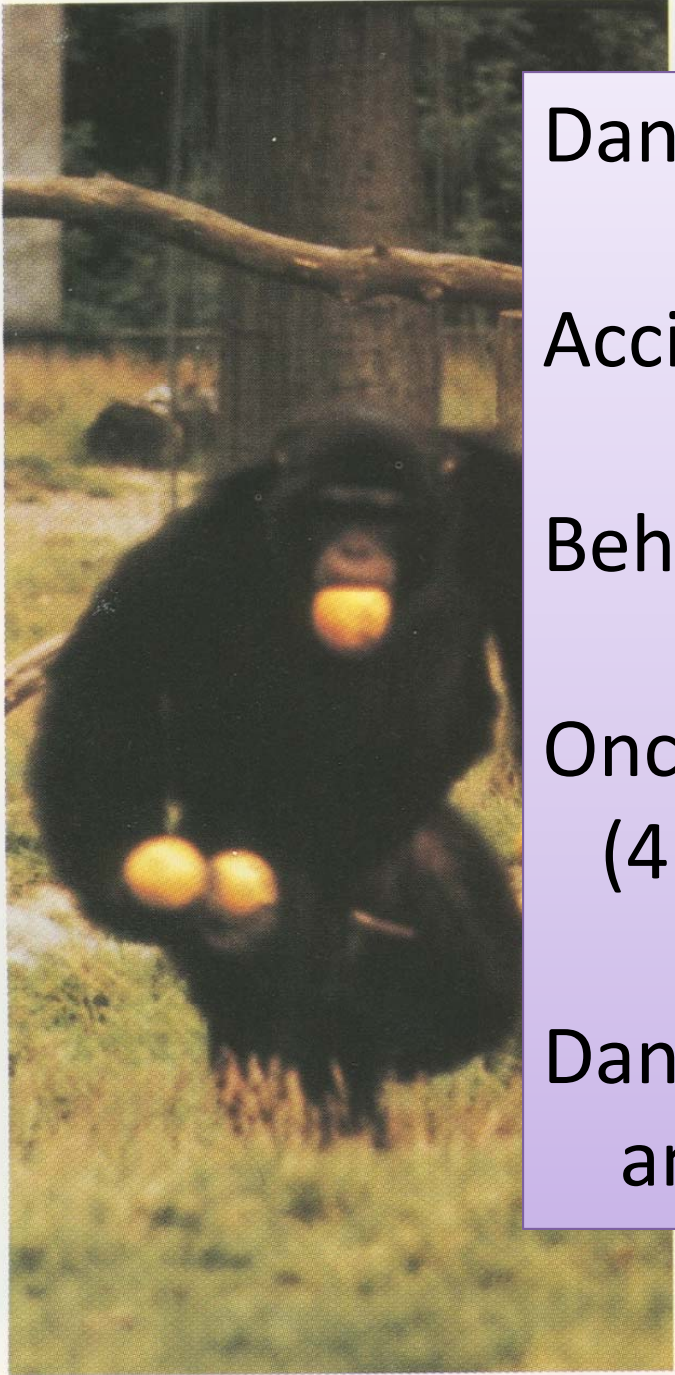
Jane Goodall: pioneered primatologist (1934~)



Her methods of studying animals in the wild, which emphasized patient observation over long periods of time of both social groups and individual animals, changed not only how chimpanzees as a species are understood, but also how studies of many different kinds of animals are carried out.



Over time, the chimps became sufficiently used to her presence that she could creep closer, no longer needing binoculars to observe them. With this advance she began to make field observations that soon revolutionized the field of primatology.



Dandy (a subordinate chimpanzee)

Accidentally discovered food source;

Behaved as if he didn't know the food

Once dominants were asleep;
(4 hours later)

Dandy returned to the food source
and ate all the food.

Trickery and deception

Examples?



A subordinate male checks to make sure no dominants are watching before attempting to mate with the female.

If a female monkey has a rendezvous with a subordinate male behind a tree, she peeks out periodically to check on the alpha's movements, or exposes her head and pretends to be foraging.



Female chimp may feign indifference when solicited by a subordinate male within sight of a dominant. When out of sight of the alpha, the same females solicit copulations from the favored subordinate and suppress the normal screams that accompany climax.



A chimp called Kanzi was notoriously mischievous, and frightened a new keeper by disappearing; a complete search of his quarters, roof and all, failed to locate the chimp. As it turns out, Kanzi had flattened himself on a bed, covered his body with blankets, and lain completely still for 20 minutes, only to emerge laughing when unable to contain himself any longer.

How do social animals develop the complicated social /cognitive skills ?

The role of play on Animal mind

How do animals come by the
social skills they require to
understand and manipulate the
behavior of others?

Much of the social polish seems
to be picked up during **play**

What is play?

Dogs love to play



The drive to play is especially evident in certain breeds of dogs.

Do invertebrates play?

Honey bees: play-flight

Honeybee workers

(lifespan=1month)

1. Hatch ~ 2,3 weeks old:
Nursing bees (sitters)

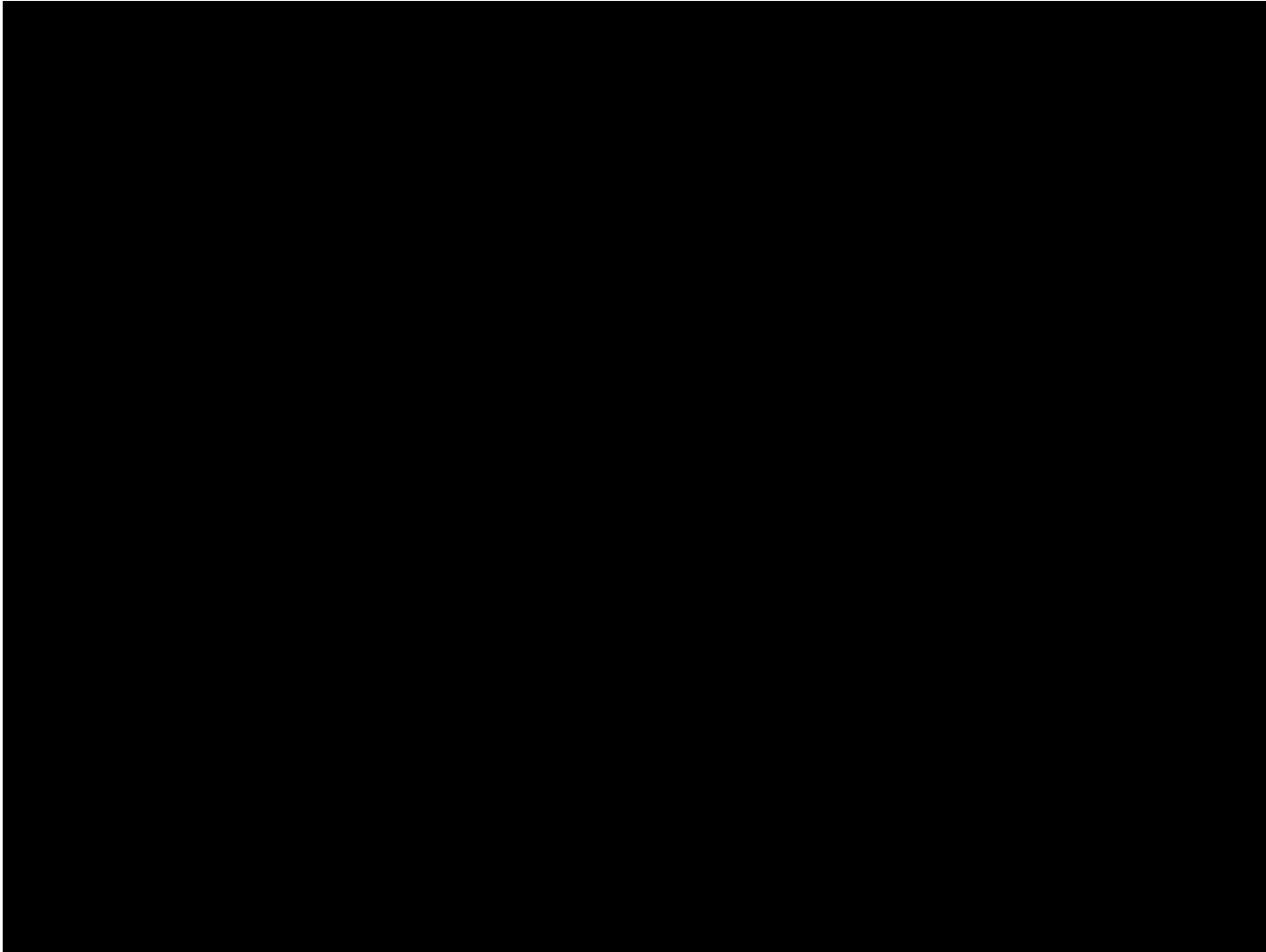


2. Then head out, become foragers

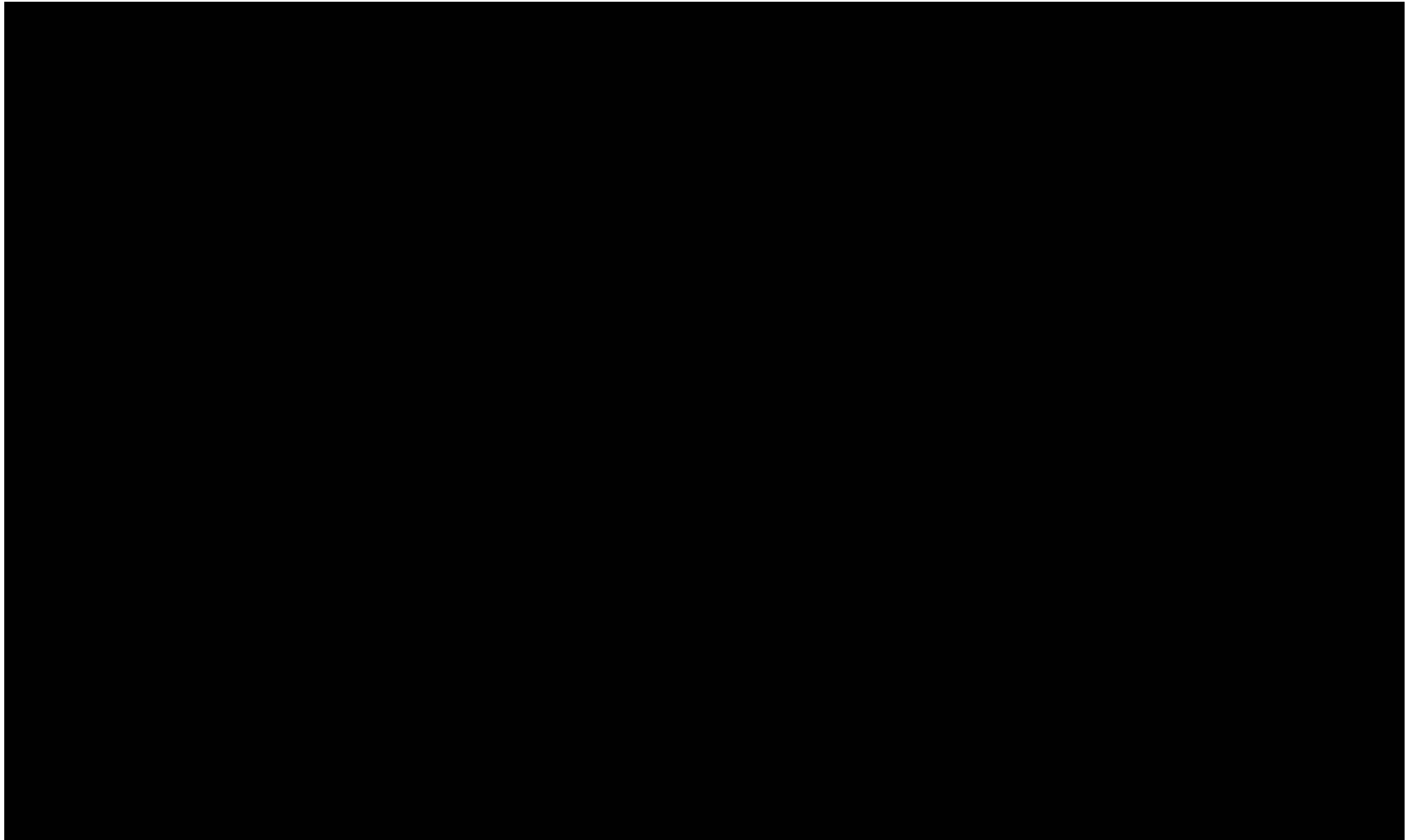
→ Fly/ play around the nest



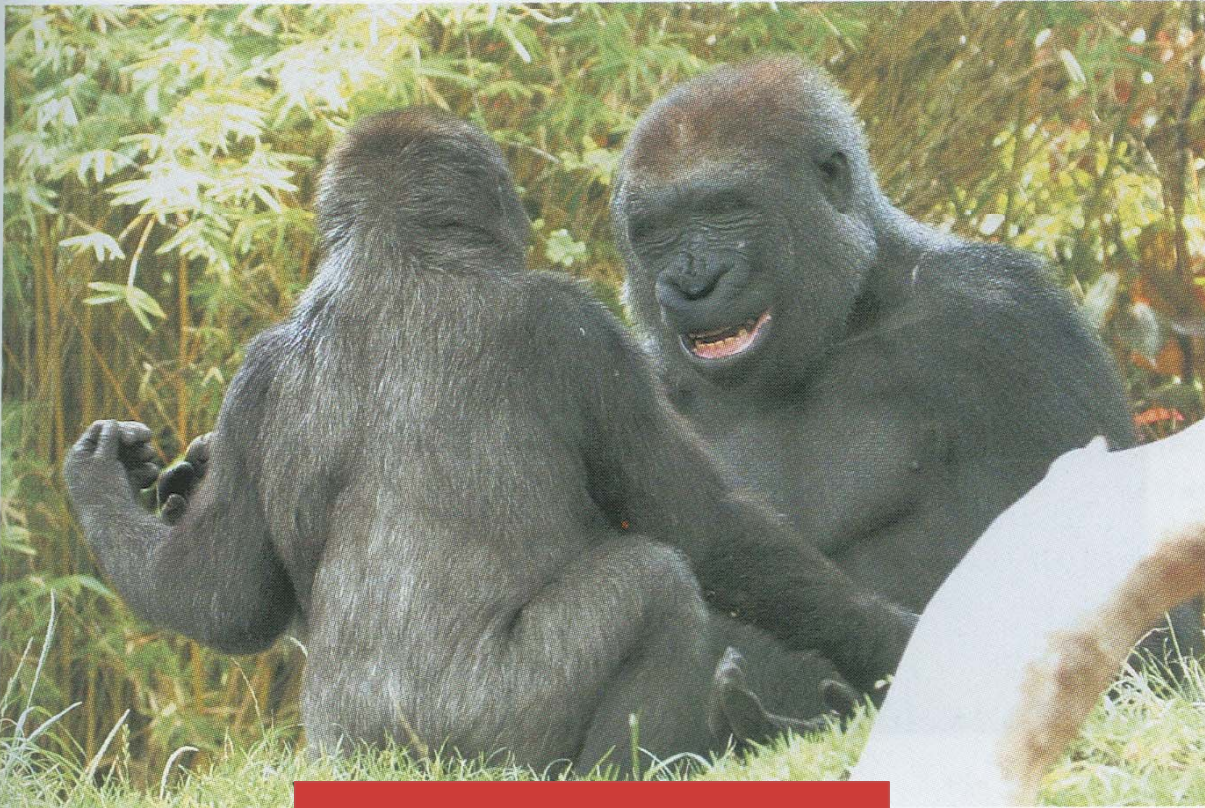
Birds--Ravens



Dolphins



How do animals know they are playing, not involved in real activity?



Play markers

FIGURE 15.12. Play face in gorillas.

Preceding bouts of aggressive play, juvenile gorillas use a facial gesture called a “play face,” which appears to signal that “what is about to occur is play.” (Photo credit: William H. Calvin)

The role of PLAY on Animal Mind

Play is a consistent characteristic of the species we see as highly intelligent

-- play is connected to some important aspects of cognition

Function of play (ultimate causes)

1. Play aids in the development of cognitive (mind) and motor skills
2. Play promote kin recognition/
social learning

Speech learning : Babbling (error correction process)

Vocal playing?



Babbling of a 1.5-year-old infant

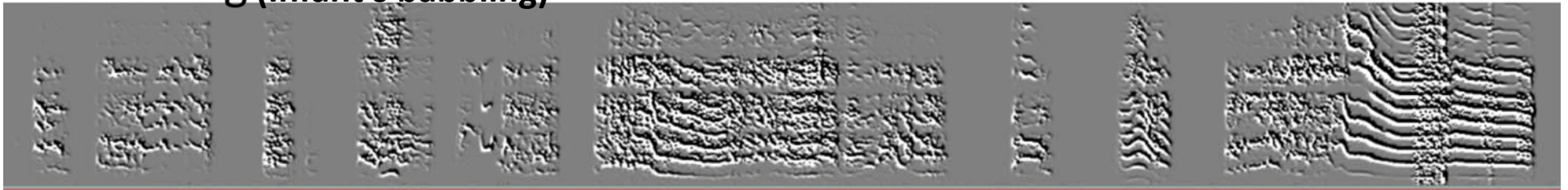
“bow wow wow wow va wa....wee wee wee...

m hi daddy ba ma ba wow wa wa.... Den da daddy daddy!”

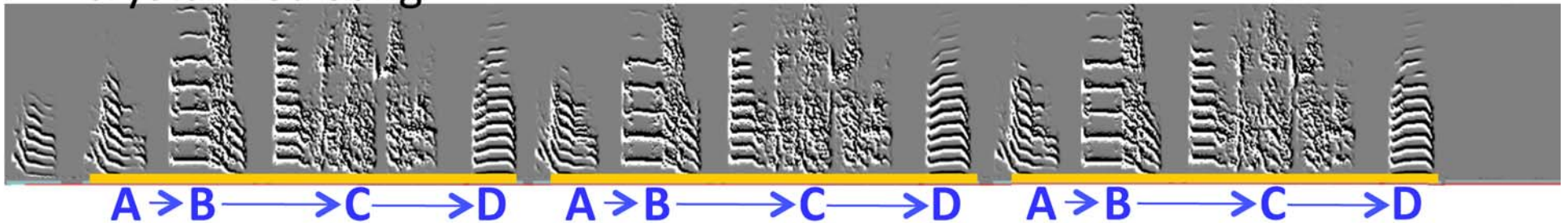
Kroodsma 1972

Bird babbling is vocal-motor playing?

subsong (Infant's babbling)



crystallized song



Zebra finch

Function of social play

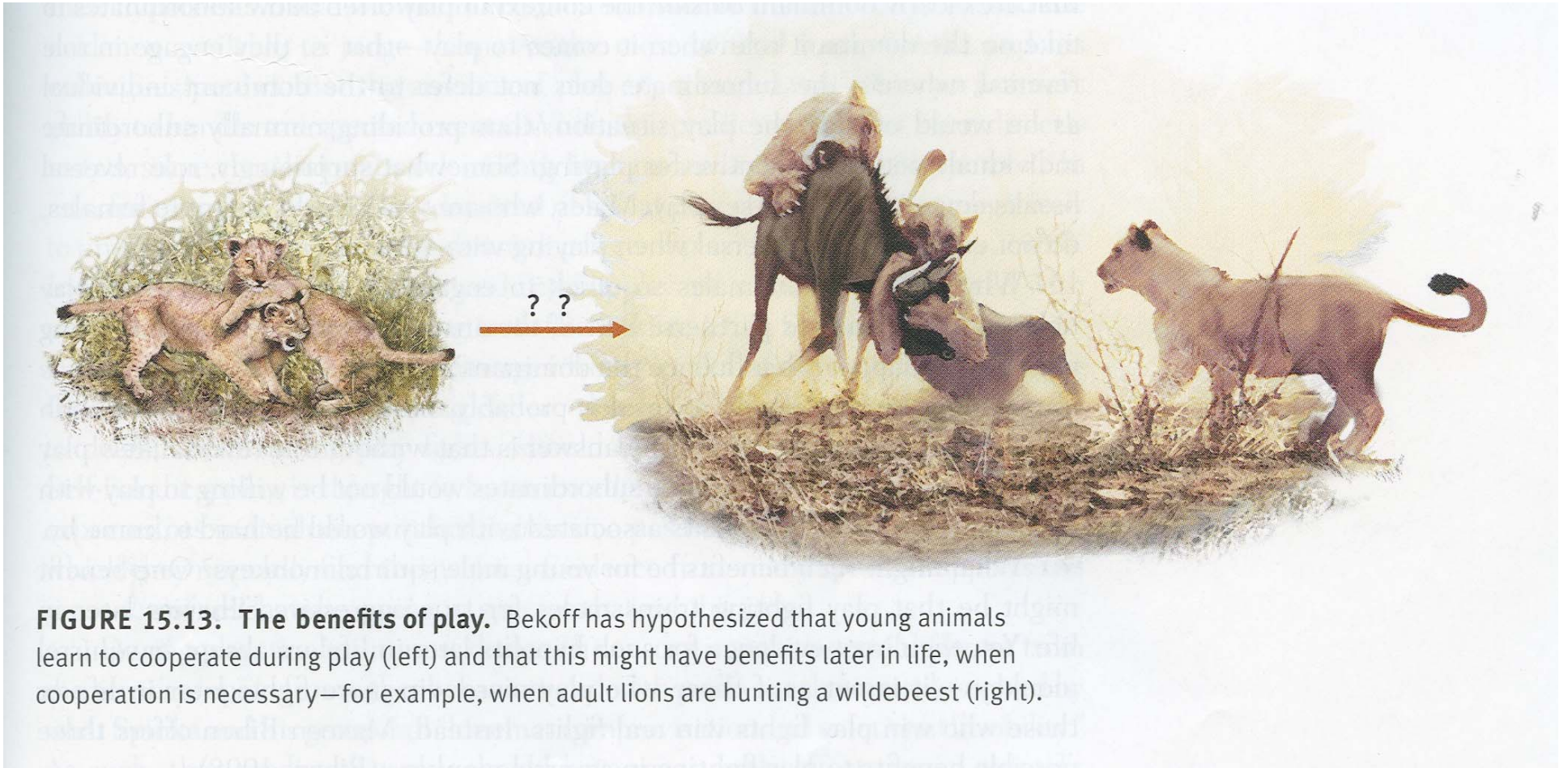
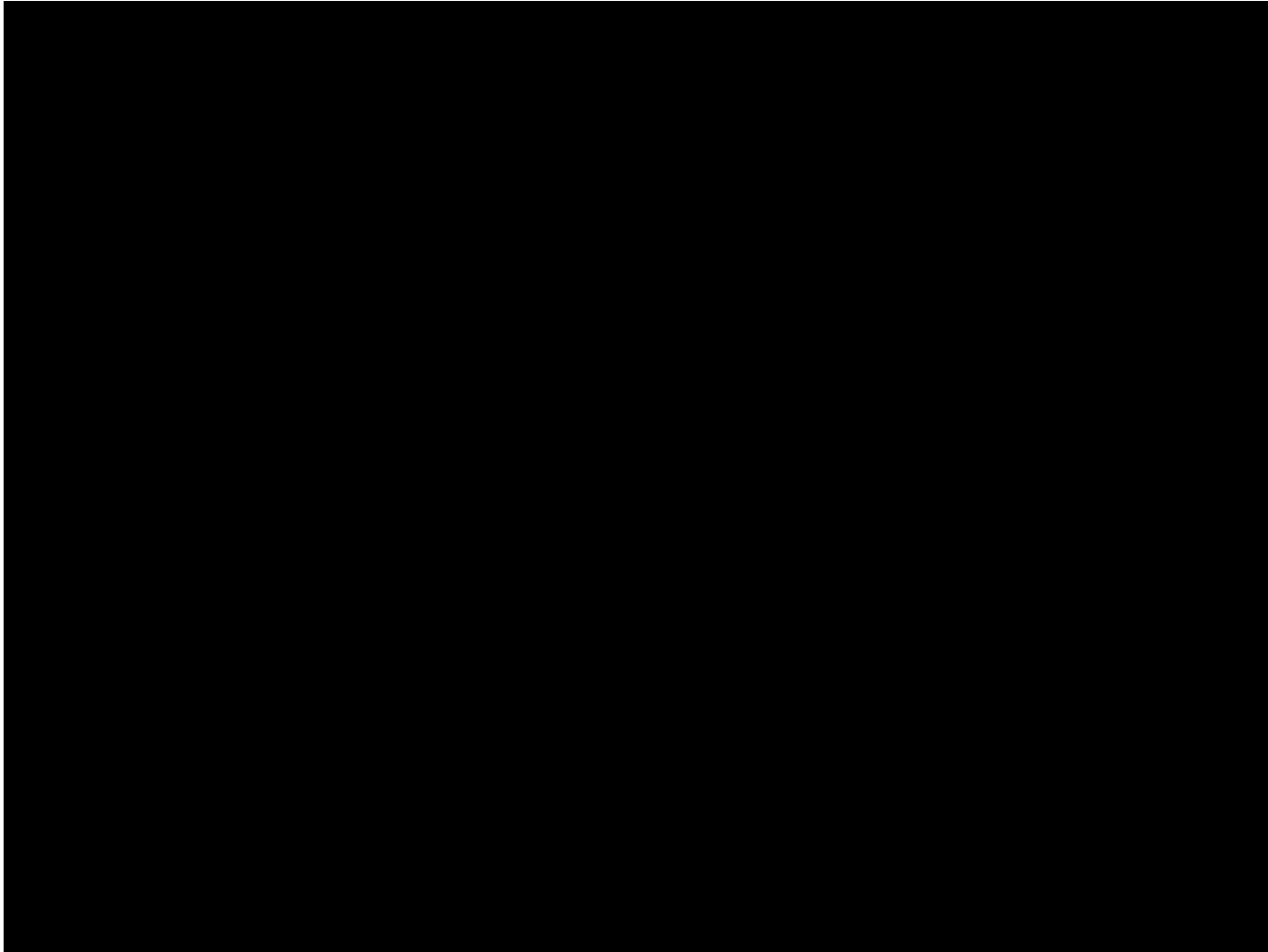


FIGURE 15.13. The benefits of play. Bekoff has hypothesized that young animals learn to cooperate during play (left) and that this might have benefits later in life, when cooperation is necessary—for example, when adult lions are hunting a wildebeest (right).

Adult Bighorn sheep fight



Juvenile Bighorn sheep play



Proximate causes of play

Play and brain development

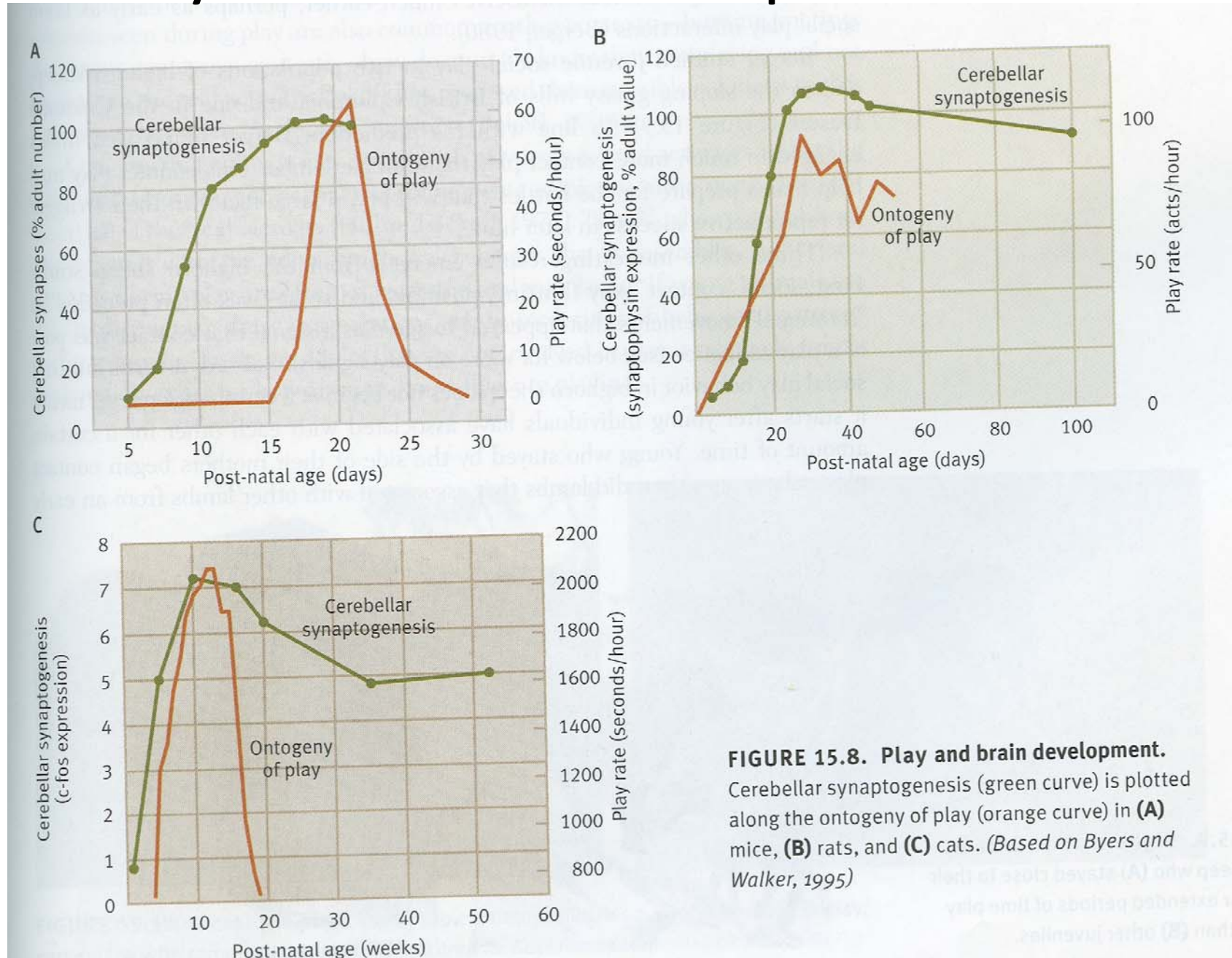


FIGURE 15.8. Play and brain development. Cerebellar synaptogenesis (green curve) is plotted along the ontogeny of play (orange curve) in **(A)** mice, **(B)** rats, and **(C)** cats. (Based on Byers and Walker, 1995)

Proximate causes of play

Play fighting and hormones in rats

1. Higher testosterone $\leftarrow \rightarrow$ more play-fight
2. Brain hormone (dopamine, serotonin...) associated with play-fight